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APPLICANT:	DORENBOSCH, J.	EXAMINER:	Daniel Jr., W.
SERIAL NO.:	09/850,314	GROUP:	2686
FILED:	May 7, 2001	CASE NO.:	PF02063NA

ENTITLED: METHOD AND APPARATUS IN A WIRELESS COMMUNICATION SYSTEM FOR DETERMINING A LOCATION OF A MOBILE STATION

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant submits the present Appeal Brief under 37 C.F.R § 41.37.

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I. REAL PARTY IN INTEREST

The real party in interest is, Motorola, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-20 are pending. Claims 1-20 are rejected and are the subject of the present appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The inventions are drawn generally to a method and apparatus in a wireless communication system for determining a location of a mobile station (page 1, lines 7-8 and page 3, line 19 - page 4, line 5). Location information is obtained from a target mobile station (Fig. 1, element 108 and Fig. 5 element 502). When a failure occurs in obtaining location information (page 3, lines 22-26), a subset of reporting devices is defined (Fig. 5, element 503). Location information corresponding to the target mobile station is elicited by a location server (Fig. 1, element 106 and Fig. 5, element 506). Portions of the elicited location information corresponding to the target mobile station are combined to determine the location of the target mobile station (Fig. 5, element 508).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-20 are allowable under 35 U.S.C. §103 over Fitch et al. (U.S. Patent No. 6,321,092 B1) and Walsh et al. (U.S. Patent No. 6,603,977 B1).

VII. ARGUMENT

Applicants assert that neither Fitch et al. nor Walsh disclose or suggest eliciting, by the location server, location information corresponding to the target MS from a subset of a plurality of reporting devices while failing to obtain location information from the target MS, as recited in independent claim 1, and similarly recited in independent claims 11 and 16.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references, when combined, must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure (MPEP 2142). The prior art must suggest the desirability of the claimed invention (MPEP 2143.01).

Fitch et al. discloses multiple input data management for wireless location-based applications. Multiple location finding equipment systems (104, 106, 108, 110) are used to support a wireless location application. A mobile switching center (112) is used to route wireless communications to or from wireless stations (102) (col. 4, line 64 – col. 5, line16). Cell/sector location information is transmitted to a location manager (16) via the MSC (112).

Fitch et al. does not disclose eliciting location information from a subset of a plurality of reporting devices while failing to obtain location information from a target MS using a long-range wireless communication system link and such is not alleged by the Office Actions.

Walsh et al. discloses a location information system for a wireless communication device and a corresponding method. According to Walsh et al., the location-enabled service always gets the location from the target wireless communication device itself, either via the long-range link or via the short-range link (col. 16, lines 52-60). Thus, Walsh et al. does not

disclose obtaining location information while a location server is failing to obtain location information from a target MS.

Furthermore, Walsh et al. discloses the wireless communication device receives location information from the reporting devices or the location-enabled service gets information from the target wireless communication device (col. 16, lines 1-6, 17-29, and 43-51). Thus, Walsh et al. also does not disclose eliciting, by the location server, location information corresponding to a target MS from a subset of a plurality of reporting devices.

Additionally, Walsh et al. does not disclose storing a target MS identity at reporting devices.

Consequently, neither Fitch et al. nor Walsh disclose or suggest eliciting, by the location server, location information corresponding to the target MS from a subset of a plurality of reporting devices while failing to obtain location information from the target MS, as recited in independent claim 1, and similarly recited in independent claims 11 and 16.

Furthermore, in addition to Applicant's previous arguments, regarding claim 1 and Walsh, the Office Action equates the claimed Mobile Station to Walsh's wireless communication device 104, the claimed reporting device to Walsh's wireless communication units 206-209, the claimed location server to Walsh's Location enabled service 108, and the short-distance link with Walsh's Bluetooth link 124. The Office Action further equates the long-distance communication system link with Walsh's link to GPS.

Walsh mentions several uses of GPS. One is via a link to GPS service 142 from the Location Entry Device 216 via antenna 222. The other one is from the MS to GPS (not shown in figures, but mentioned in text). In the context of claim 1, the Office Action implies the long-range communication system link equates to the link of Walsh's MS to the GPS service.

However, it is straightforward to find significant differences between this interpretation of Walsh and claim 1. In particular, regarding the obtaining step, Applicant asserts it would have been non-obvious for the GPS system to obtain location information from the target MS using the long-range link. It would even be less obvious for the GPS to store such location information. More particularly, a GPS system does not receive or store information from a MS, and there is no basis for such an allegation. Regarding the communication step, even though Walsh's reporting devices 206-209 may communicate with the MS, Walsh never teaches that these devices will store location information corresponding to the target MS including the identity of the target MS. Regarding the while failing sub-step, the Office Action admits Walsh is not concerned with error mitigation. Also, since GPS

would not obtain location information from the target MS, so the GPS's obtaining cannot fail. Regarding the eliciting sub step, a GPS location server does not elicit location information corresponding to a target MS in any obvious or inherent way.

Thus, Walsh does not teach or suggest the features of claim 1, either by itself or in combination with Fitch.

Regarding the Office Action's allegations with respect to claim 11 and Walsh, and to shed additional light on claim 1, the Office Action equates the claimed Mobile Station to Walsh's wireless communication device 104. Let us investigate what the Office Action considers the equivalent of our long-range wireless communication link:

The Office Action mentions the long-range link when stating that Walsh teaches 'failing to obtain location information from the target MS using the long-range wireless communication system link'. In this context:

- The Office Action refers to col. 8, lines 21-30. These lines do not mention a long-range link, nor do they teach obtaining information from the target. To the contrary, they teach sending location information to the target via a short-range link.
- The Office Action refers to col. 8, lines 38-53. In these lines, the controller 200 receives location information from the location entry device 202, such as a keyboard or a GPS receiver. This does not teach obtaining location information from the target MS. These lines again also teach sending location information to a wireless communication device 104. They do not teach obtaining location information from a target MS.
- The Office Action refers to col. 13, lines 35-40. These lines describe the MS. The MS has a long-range communication circuit 304 that couples the MS's controller 200 with the long-range communication circuits 302. [Note that this controller is not equal to a location server nor to a location server's processor.] The preceding lines 28-32 explain how the MS can use the long-range link to send location information to somewhere, in response to receiving the location information from the location information system 102. Inspection of Figure 1 shows that this location information is being sent to a location enabled service 108.
- The Office Action refers to col. 11, lines 21-41. These lines only teach communication between a Location Entry Device 202 and a controller. They do not teach obtaining location information from the target MS using the long-range wireless communication system link.

- The Office Action refers to col. 10, lines 42-67. These lines first teach that the location information represents the locations of predetermined areas. The lines also describe how the wireless communication units 206-209 (which are not to be confused with the MS 104) are coupled to the controller (presumably via wired connections) and how these wireless communication units 206-209 send location information to the wireless communication device 104. The lines do not teach obtaining location information from a target MS.
- The Office Action refers to col. 9, lines 52-63. These lines give details about the location enabled service 108.

The cited references indicate that the Office Action equates the claimed long-range communication system link to the long-range link 114/116 that connects the MS to the location enabled service 108. Thus, the Office Action equates the claimed location server to Walsh's location enabled service 108.

Let us now investigate what the Office Action considers the equivalent of our short-range wireless communication link:

The Office Action mentions the long-range link when stating that Walsh teaches 'location information having been obtained by the reporting devices in the subset using a short-range wireless link between the target MS and reporting devices in the subset'. In this context:

- The Office Action refers to col. 8, lines 42-53. These lines clearly state that the wireless communication unit 209 sends location information to a wireless communication device 104 (a MS) over a short range wireless communication channel 124. Please note that the lines teach sending location information from the wireless communications units to the MS. These lines neither state nor imply that the wireless communication unit 209 ever gets location information from the MS.
- The Office Action refers to col. 10, lines 41-53. These lines state that the controller 200 receives location information representing a plurality of location descriptions respectively associated with a plurality of predetermined areas 210-213 in the facility 110. The lines also teach that at least one of the wireless communication units sends location information to the MS over a short-range link, such as Bluetooth. Please note that the lines neither teach nor hint that the controller receives location information representing the location of the MS. Please also note that the lines teach sending location information from the wireless communications units to the MS. These lines

neither state nor hint that the wireless communication unit 209 ever gets location information from the MS.

The cited references indicate that the Office Action equates our short-range communication system link to the short-range link that connects the MS to wireless communication units 206-209. Thus, the Office Action equates our reporting devices to Walsh's wireless communication units 206-209.

Having defined the alleged equivalences between claim 11 and Walsh, we can review the Office Action's remark that:

> Walsh further discloses the features while failing to obtain location information from the target MS (104) using the long-range wireless communication system link.., where the system is coupled to a long range system (e.g. GPS) and short range (e.g. Bluetooth) to locate the MS. The short range is used in locations... where the long range system does not adequately perform. In which the failing of the long-range system would be obvious;
>
> the location information having been obtained by the reporting devices in the subset using a short-range wireless link between the target MS and reporting devices in the subset.., where location information is gathered via the short-range link that communicates with the wireless communication device (104) through the wireless communication units (206) which is a subset device using Bluetooth.

In discussing the above Office Action's allegation, please first note that the reference to GPS in Walsh does not apply to the long-range link in claim 11. The claimed long-range wireless communication system link can not be equated with a GPS link because, in claim 11, the long-range wireless communication system link couples the processor of the location server with the target MS. GPS does not couple a MS and a location enabled service's processor.

More importantly, there are extremely significant differences between Walsh and claim 11:

1. In claim 11 the wireless long-range link is used by the controller to communicate with the target MS and with the plurality of reporting devices. In Walsh the long-range link cannot be used by the controller (location enabled service 108) to communicate with

the plurality of reporting devices (wireless communication units 206-209). The devices 206-209 communicate with the location information system 102.

2. In claim 11, the processor of the controller is programmed to define a subset of reporting devices. In contrast, Walsh does not teach the definition of a subset of the reporting devices.
3. In claim 11, the processor of the controller is programmed to elicit location information corresponding to the target MS from the reporting devices in the subset. In contrast, Walsh does not teach the programming of a processor to elicit location information corresponding to any target MS from any reporting device. Walsh only teaches transfer of location information associated with a plurality of predetermined areas. Furthermore, Walsh does not teach or imply such functionality in the processor of the controller (location enabled service 108).
4. Claim 11 is specific that location information corresponding to the target MS has been obtained by the reporting devices in the subset using a short-range wireless link between the target MS and the reporting devices in the subset. In Walsh, the short-range wireless link 124 between the target MS (104) and the reporting devices (wireless communication units 206-209) is only used to send location information to the MS. The transferred location information corresponds to the areas of the facility.
5. Walsh does not teach any mechanism that can be used by the controller (location enabled service 108) to recover from a failure and does not discuss or hint how the controller's processor programmed to do so while failing to obtain location information from the MS using the long-range wireless link.

Therefore, Walsh does not teach or suggest the features of claim 11 either by itself or in combination with Fitch.

Regarding claim 16 and Walsh, the Office Action again equates the claimed Mobile Station to Walsh's wireless communication device 104, equates the processor in the claimed reporting device to Walsh's Controller 200, equates the claimed first transceiver to the transceiver of one of the Location Information systems 206, and equates the claimed long-distance link with the Location Entry Device 202. The Office Action indicates the device 202 can communicate with a location server 142 (not further described by Walsh) via a GPS antenna 222.

The Office Action implicitly equates the claimed location server to Walsh's GPS service, explicitly equates the claimed reporting device to Walsh's Location entry device 202, and explicitly equates the claimed memory to Walsh's memory device 204.

As the claimed reporting device comprises a processor, the processor comprising a memory, a first transceiver and a second transceiver, it appears the Office Action indicates the corresponding reporting device in Walsh comprises the controller 200, the memory 204, the Location information system 206, the Location entry device 202 and the GPS antenna 222 and that Walsh's processor uses short-range link 124 and a long-range link with the GPS location service.

It is straightforward to find significant differences between this interpretation of Walsh and claim 16:

1. In Walsh, no communication via the short-range link is done for obtaining and storing in the memory 204 location information corresponding to the target MS including the identity of the target MS. All that is stored in Walsh's memory is location information that represents locations of predetermined areas. Walsh does not mention or imply storing any MS-specific information in the memory and definitely does not disclose storing an MS's identity.
2. There is no indication and it cannot be inherent that Walsh's processor is programmed to receive via the long-range ling and thus from the GPS system a message eliciting the location information corresponding to the target MS while the GPS system has failed to obtain location information from the target MS. In particular, firstly a GPS system is not intended to obtain location information from a target MS and thus will not fail to obtain such information and will not send request to a processor that elicits the gathering of location information.
3. There is no disclosure and it cannot be inherent that Walsh's processor is programmed to communicate the elicited location information corresponding to the target MS to the GPS system (the location). In particular, a GPS user does not report locations to the GPS system and Walsh does not mention such communications.

Thus, Walsh does not teach or suggest the features of claim 16 either by itself or in combination with Fitch.

In the Response to Arguments section, the final Office Action alleges, "Walsh discloses while failing, by the location server (e.g., 108), to obtain location information from the target MS (104) (see col. 8, lines 21-30, 38-53; col. 10, lines 42-67; col. 13, lines 35-40;

col. 11, lines 23-41; col. 9, lines 52-63; Fig. 3)..." Applicant disagrees. In particular, the cited sections do not mention anything about failing to obtain location information.

The Office Action further alleges, "The short range is used in locations (e.g., facilities, hallways, or elevators in which the failing by the server to [sic] would be inherent where the long-range system does not adequately perform (see col. 8, lines 29-31) the sort range is used to determine location." Applicant disagrees.

The cited section does not disclose anything about failing to obtain location information. In particular, the cited section only states, "The wireless communication device 104 is told its location in a facility for use as an ALI during an E911 call by the wireless communication device 104, where conventional network-based solutions, device-based solutions, or a combination of the network-based solutions and the device-based solution do not adequately perform, such as in the facility 110." This section only mentions that certain solutions do not adequately perform in certain facilities and that the location system 102 is used in such facilities. For example, the location system 102 may always be used in such facilities, regardless of whether a location server failed to obtain location information. Thus, the cited section does not disclose anything about failing to obtain location information.

Additionally, Applicant asserts detecting a failure is not inherent in Walsh et al. In particular, the cited section only mentions that certain solutions do not adequately perform in certain facilities and that the location system 102 is used in such facilities. The cited section illustrates how the system 102 would always be used in a facility because other solutions do not adequately perform in the facility. Thus, the system 102 would not fail to obtain location information because the system 102 would always be used and there would be no failures. Therefore, performing steps while failing to obtain location information is not inherent in Walsh et al.

Furthermore, Applicant asserts the Office Action has not properly established the inherency of performing the claimed steps while failing, by the location server, to obtain location information from a target mobile station. In particular, according to MPEP § 2112 (IV), "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Because the Office Action does not provide a basis in fact and/or technical reasoning to reasonably support the determination of

the allegedly inherent characteristic, the Office Action has not properly established a basis for an allegation of inherency.

Therefore, neither Fitch et al. nor Walsh et al. disclose the claimed steps performed while failing, by the location server, to obtain location information from a target mobile station, as recited in independent claim 1, and similarly recited in independent claims 11 and 16.

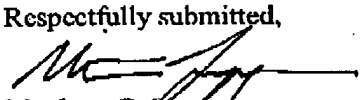
Accordingly, kindly reverse and vacate the rejection of claims 1-20 under 35 U.S.C. § 103, with instructions for the Examiner to allow claims 1-20.

CONCLUSION

In view of the discussion above, the claims of the present application are in condition for allowance. Kindly withdraw any rejections and objections and allow this application to issue as a United States Patent without further delay.

The Commissioner is hereby authorized to deduct the fees for filing a brief in support of an appeal and any fees arising as a result of this Appeal Brief or any other communication from or to credit any overpayments to Deposit Account No. 50-2117.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

1. A method in a wireless communication system for determining a location of a target mobile station (MS) having a long-range wireless communication system link with a location server and a short-range wireless link with a plurality of reporting devices, the method comprising the steps of:

obtaining a first location information from the target MS using the wireless communication system link and storing the first location information in a location server of the system;

communicating by a plurality of reporting devices with the target MS using the short-range wireless link and storing location information corresponding to the target MS including the identity of the target MS in the plurality of reporting devices; and

while failing, by the location server, to obtain location information from the target MS:

defining a subset of the plurality of reporting devices;

eliciting, by the location server, the location information corresponding to the target MS from the subset; and

combining portions of the elicited location information corresponding to the target MS to determine the location of the target MS.

2. The method of claim 1,

wherein the location of each of the plurality of reporting devices is known to at least one of the reporting device and the location server, and

wherein the defining step comprises the step of defining the subset to include the plurality of reporting devices whose locations are less than a predetermined distance from the target MS, as estimated based upon the first location information.

3. The method of claim 1, wherein the defining step comprises the step of defining the subset to include all the plurality of reporting devices within range of one of a cell and an area, in which the target MS was last located.

4. The method of claim 1, wherein the defining step comprises the steps of:

defining a time period; and

defining the subset to be all reporting devices which stored location information corresponding to the target MS during the time period.

5. The method of claim 1, wherein the defining step is performed in a portion of the wireless communication system exclusive of the plurality of reporting devices.

6. The method of claim 1, wherein the defining step is performed in the plurality of reporting devices according to a set of subset-selection rules.

7. The method of claim 1, wherein the eliciting step comprises the steps of:

identifying the target MS to the subset; and

requesting the subset to report the location information corresponding to the target MS.

8. The method of claim 1,

wherein the location information includes a time stamp identifying when the target MS was at a reported location, and

wherein the combining step comprises the step of extrapolating a current location of the target MS from a last reported location and time and at least one of another reported location and time, and a reported velocity.

9. The method of claim 1, wherein eliciting by the location server, of the location information from at least one of the reporting devices in the subset is done over a long-range link connecting the location server and the at least one of the reporting devices.

10. The method of claim 1, further comprising in a reporting device the steps of:

receiving a request to report the location information corresponding to the target MS; and

attempting to contact the target MS to determine the location of the target MS, in response to receiving the request.

11. A location server in a wireless communication system for determining a location of a mobile station (MS), the location server comprising:

a communication interface;

a processor coupled to the communication interface for controlling the communication interface to communicate, via a long-range wireless communication system link, with a target MS and with a plurality of reporting devices to obtain location information corresponding to the target MS including the identity of the target MS; and

a database coupled to the processor for storing the location information,

wherein the processor is programmed to, while failing to obtain location information from the target MS using the long-range wireless communication system link:

define a subset of the plurality of reporting devices;

elicit location information corresponding to the target MS from the reporting devices in the subset, the location information having been obtained by the reporting devices in the subset using a short-range wireless link between the target MS and the reporting devices in the subset; and

combine portions of the elicited location information corresponding to the target MS to determine the location of the target MS.

12. The location server of claim 11,

wherein the location of each of the plurality of reporting devices is known to at least one of the reporting device and the location server, and

wherein the processor is further programmed to define the subset to include the plurality of reporting devices whose locations are less than a predetermined distance from the target MS, as estimated based upon the location information.

13. The location server of claim 11, wherein the processor is further programmed to define the subset to include all the plurality of reporting devices within range of one of a cell and an area, in which the target MS was last located.

14. The location server of claim 11, wherein the processor is further programmed to:

identify the target MS to the subset; and

request the subset to report the location information corresponding to the target MS.

15. The location server of claim 11,

wherein the location information includes a time stamp identifying when the target MS was at a reported location, and

wherein the processor is further programmed to extrapolate a current location of the target MS from a last reported location and time and at least one of another reported location and time, and a reported velocity.

16. A reporting device in a wireless communication system for determining a location of a target mobile station (MS), the reporting device comprising:

a processor for controlling the reporting device, the processor comprising a memory; and

a first transceiver coupled to the processor for cooperating with the processor to communicate with the target MS, via a short-range wireless link, for obtaining and storing in the memory location information corresponding to the target MS including the identity of the target MS; and

a second transceiver coupled to the processor for cooperating with the processor to communicate with a location server of the wireless communication system, via the long-range wireless link,

wherein the processor is programmed to cooperate with the transceiver to:

receive, on the long-range wireless communication system link, from the location server, while the location service has failed to obtain location information from the

target MS, a message eliciting the location information corresponding to the target MS from a subset of a plurality of reporting devices; and

communicate the elicited location information corresponding to the target MS to the location server when the reporting device is a member of the subset.

17. The reporting device of claim 16 further comprising

a location determining element coupled to the processor for determining the location of the reporting device,

wherein the processor is further programmed to:

control the first transceiver to limit communication range between the reporting device and the target MS to that of a short-range link;

communicate with the target MS; and

store the location of the reporting device as the location of the target MS.

18. The reporting device of claim 16, wherein the processor is further programmed to:

receive a request to report the location information corresponding to the target MS; and

attempt to contact the target MS to determine the location of the target MS, in response to receiving the request.

19. The reporting device of claim 16, wherein the reporting device is a mobile wireless device similar to the target MS.

20. The reporting device of claim 16, wherein the reporting device is a fixed, wired device.